

Claims

1. A method for automatically producing a music video, comprising:
 - receiving an audio signal;
 - receiving a video signal;
 - detecting transition points in the audio signal and the video signal;
 - aligning in time the video signal with the audio signal;
 - editing the aligned video signal; and
 - merging the aligned video signal with the audio signal to form a music video signal;
2. The method of Claim 1, wherein the step of aligning comprises:
 - forming a video segment comprising a portion of the video signal based upon the transition points in the video signal; and
 - aligning the video segment with a transition point in the audio signal.
3. The method of Claim 2, wherein:
 - a boundary of the video segment is defined by a transition point in the video signal; and
 - the boundary of the video segment is aligned with the transition point in the audio signal;
4. The method of Claim 3, wherein:
 - the boundary is located at beginning of video segment.

5. The method of Claim 2, wherein:

a first and second transition in the audio signal define an audio segment having a length; and

the video segment has a video segment length, wherein the video segment length is reduced to equal the length of the audio segment.

6. The method of Claim 5, wherein:

the video segment is truncated in order to equal the length of the audio segment.

7. The method of Claim 5, wherein:

the video segment is evaluated using a suitability measurement in order to define a portion of the video segment equal to the length of the audio segment.

8. The method of Claim 1, wherein the step of detecting comprises:

parameterizing the audio and video signals in order to form corresponding sets of feature vectors; and

evaluating the sets of feature vectors in order to determine the location of transitions in the corresponding signals.

9. The method of Claim 8, wherein:

the parameterization includes a histogram.

10. The method of Claim 8, wherein:

the parameterization includes a frequency domain transform.

11. The method of Claim 8, wherein the step of evaluating comprises:
constructing a self-similarity matrix based upon a distance metric for a set
of feature vectors; and
extracting structure from the self-similarity matrix via a kernel correlation.
12. The method of Claim 11, wherein:
the distance metric is the Euclidean distance between feature vectors.
13. The method of Claim 11, wherein:
the distance metric is the cosine of the angle between feature vectors.
14. The method of Claim 11, wherein:
the distance metric is the Karhunen-Loeve distance.
15. The method of Claim 8, wherein:
the evaluation of sets of feature vectors includes determining a difference
between adjacent feature vectors.
16. The method of Claim 8, wherein:
the evaluation of sets of feature vectors includes determining an
accumulated difference between a plurality of feature vectors.

17. The method of Claim 8, wherein:

the evaluation of sets of feature vectors includes comparing the time period between a previous transition and a feature vector in order to determine the location of a transition.

18. The method of Claim 1, wherein the step of aligning in time comprises:

aligning the detected transitions in the audio signal with the detected transitions in the video signal using dynamic programming.

19. The method of Claim 1, wherein the step of aligning in time comprises:

aligning the detected transitions in the audio signal with the detected transitions in the video signal using the tempo of the audio signal.

20. The method of Claim 1, wherein the step of aligning in time comprises:

adjusting a transition detection threshold to produce a specific number of transitions corresponding to the desired number of video cuts;

aligning the transitions of the audio signal with the transitions of the video signal.

21. The method of Claim 11, wherein:

the width of the kernel determines the duration of transitions detected.

22. The method of Claim 1, wherein the step of merging comprises:

combining the audio signal with a second audio signal associated with the video signal, wherein the audio signal is reduced in volume during periods of speech on the second audio signal.

23. The method of Claim 1, wherein the step of aligning comprises:

receiving a user selection designating a video segment for inclusion in the music video signal.

24. An article of manufacture including an information storage medium wherein is stored information, the information comprising:

a group of processor readable instructions adapted to operate on a processing device, wherein the group of processor readable instructions are adapted to operate the processing device according to the method of Claim 1.